

REMARKS/ARGUMENTS

Claims 1 – 23 are currently pending in the application, with claims 1 – 6 being withdrawn and claims 7 – 23 being rejected.

For the reasons set forth below, applicant respectfully requests reconsideration of the claim rejections.

Patentability of the Claims

Claim 7

This independent method claim was rejected under 35 USC 103(a) as being unpatentable over Robertson, U.S. Patent No. 5,487,378, in view of Voges, U.S. Patent No. 6,443,146. The grounds for the rejection of claim 7 state:

“As to claims 7-16, Robertson in view of Voges teaches claimed structure as applied for claims 17-23. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to obtain the claimed method steps through the use of [the] inhaler of Robertson in view of Voges.”

Robertson’s aerosol generator uses a high-frequency vibrator element that is excited to vibrate in the range of 10 kHz to 500 kHz to impart pressure waves to the liquid and thereby force droplets through the nozzles. (Column 3, lines 57 – 63.)

Applicant notes that Claim 7 includes the step of:

“instantaneously heating the liquid in the chambers by an amount sufficient to produce a vapor bubble ... for propelling from each chamber droplets of the liquid”

The Office action, on page 3, acknowledges that Robertson is silent about this step. The action then points to structure in Voges that -when combined with Robertson supposedly would arrive at the steps of claims 7 – 16.

Voges uses a piezoelectric dispenser head 14 that, like Robertson, develops pressure pulses to force a fine spray of droplets from nozzles 15 in the dispensing head. Once outside of the nozzles, the droplets are entrained in an airflow “A” (Fig. 2 of Voges) that moves through a mouthpiece 5 that surrounds the dispenser head. Voges states that the fine droplets “tend to vaporize” in the airflow.

The Voges device calls for an optional heating element 20 for heating the air stream that carries the droplets. This is claimed to enhance vaporization of the droplets in the air stream. In rejecting claim 7 (as well as all of the present claims), the Examiner asserts that it would be obvious to combine Robertson and the heating element of Voges to arrive at a method that includes the step of *instantaneously heating the liquid in the chambers by an amount sufficient to produce a vapor bubble ... for propelling from each chamber droplets of the liquid* as defined in claim 7. Applicant respectfully disagrees.

As an initial point, it is noted that **nothing** in Voges would lead one to instantaneously heat liquid in a chamber to produce a vapor bubble for propelling droplets of the liquid. Voges heats a combination of an air stream and droplets that have already been propelled from the liquid filled chamber. In fact, Voges, like Robertson, uses pressure pulses for this purpose and, like Robertson, Voges is silent about the notion of instantaneously heating liquid in the chamber from which the droplet is propelled.

The optional heater of Voges is located in the device well downstream of any liquid filled chamber. Accordingly, even if there were reasons to connect the Voges heater downstream of the Robertson aerosol generator, all of the claim 7 limitations (such as the one quoted above) would not be met. Accordingly, a proper case of *prima facie* obviousness has not been made.

When one of ordinary skill considers the Voges reference as a whole, it is noteworthy that the Voges heater is an optional element for heating the aerosol *after* the droplets are generated. A separate mechanism (dispenser head 14) generates the droplets. Accordingly, one of ordinary skill is not at all motivated by Voges, when that reference is read as a whole, to modify a droplet generator since Voges uses the heater for another, optional purpose. Moreover, there is no discussion in Voges as to how or why the heater element would be reconfigured to fit and operate within a liquid filled chamber for forcing droplets therefrom.

Even if Voges disclosed or suggested the notion of heating the liquid-filled chambers to produce vapor bubbles for expelling droplets, it is important to note that Robertson states (column 6, lines 25 -57):

“Bubbles inside the system can present a very serious problem since they can prevent operation of the aerosol generator and/or dose gauge.”

In the next lines, Robertson states:

“Hence the bubble free filling and maintenance of a bubble free system is of paramount importance. To reduce the effects of the liquid outgassing to form bubbles during the service life of the device a portion of the liquid feed system may be formed with a gas remover.”

It is clear from the above that Robertson expresses a need to avoid any bubbles in its liquid and employs things like gas removers to prevent the formation of such bubbles. Accordingly, Robertson clearly teaches away from using vapor-bubble-producing heat transducers in the inhaler device described there. Because of this express **teaching away** from such a modification of Robertson, the combination of Robertson and Voges cannot be properly made for the purposes of establishing a *prima facie* case of obviousness.

Therefore, the rejection of claim 7 and the claims depending therefrom should be withdrawn.

Claim 15

Independent method claim 15 was rejected under the same grounds applied to claim 7. Applicant notes that claim 15 includes the step of: *“instantaneously heating the liquid in the chambers by an amount sufficient to produce a vapor bubble in each chamber that propels the liquid from the chamber.”*

As noted above in connection with claim 7, Robertson and Voges cannot be properly combined to establish a *prima facie* case of obviousness and, therefore, it is submitted that claim 15 and its dependent claim 16 are allowable.

Claims 17 – 23

These apparatus claims were rejected in view of the same combination of Robertson and Voges as discussed above in connection with claims 7 - 16. Accordingly, as discussed above, Applicant submits that the combination of Robertson and Voges is improper for the purposes of establishing a proper *prima facie* obviousness rejection, and the rejection of these claims should, therefore, be withdrawn.

Conclusion

In view of the foregoing, Applicant believes that all of the currently pending claims are in condition for allowance, and an early notification to that effect is respectfully requested. If the Examiner has any questions, he is invited to contact Applicant's attorney at the below-listed telephone number.

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